Final Minor Modification
Conservation Measure for the Razorback Sucker
Lower Colorado River Multi-Species Conservation Program
Program Decision Document 20-001

Steering Committee Motion 20-002, April 22, 2020

The Steering Committee approves Reclamation's recommended changes to conservation measure RASU5 to conserve and protect the razorback sucker genetic diversity in Lake Mohave, specifically:

RASU5—Support ongoing razorback sucker conservation efforts at Lake Mohave. Provide support to protect and conserve the genetic diversity of the existing Lake Mohave razorback sucker population with the goal of maintaining this population as a genetic refuge for the species.

(Moved by Jon Sjoberg, seconded by Wade Noble, and approved by consensus)

Current Conservation Measure

5.7.6.2 Conservation Measures (LCR MSCP 2004)

RASU5 – Support ongoing razorback sucker conservation efforts at Lake Mohave. Provide support to maintain the current Lake Mohave Program (Native Fish Work Group) goal of maintaining a population of 50,000 adult razorback sucker in Lake Mohave as a genetic refuge.

Justification

Historically widespread and abundant in the Colorado River and its tributaries, the razorback sucker experienced a considerable, range-wide decline in the second half of the twentieth century. The population in Lake Mohave followed this trend, and abundance estimates that had ranged from 60,000–75,000 in the 1980s had declined to fewer than 15,000 by the mid-1990s (Marsh et al. 2003). Impacts of nonnative fishes and habitat alteration associated with regional water development were identified as key factors affecting razorback sucker populations, and despite recovery efforts that began in 1976, the species was listed as endangered in 1991 (USFWS 1991).

The Native Fish Work Group (NFWG) is a multi-agency, ad-hoc team that was brought together by mutual consent in the late 1980s for the single purpose of replacing the aging, senescent population of adult razorback suckers in Lake Mohave. The group formed in response to the observed decline of the species in the lake and developed a novel conservation strategy (the Lake Mohave Program) with three basic components: (1) harvest wild-born larvae from the lake each year, (2) rear these fish in protective custody, and (3) repatriate individuals to the reservoir at a size that would reduce predation. It was believed that this strategy would provide the best

opportunity for replacing the population in both quantity and quality by conserving the genetic diversity of the extant adult population through collection and eventual repatriation of their offspring. The NFWG's original program goal was to produce and stock 5,000–10,000 juvenile razorback suckers each year for a minimum of five years to establish a population of 50,000 adults in Lake Mohave.

Repatriation of wild-born razorback suckers to Lake Mohave was met with limited success. Post-stocking survival of these individuals remained low and population estimates declined to fewer than 3,000 individuals in Lake Mohave by 2001 (Marsh et al. 2003). Despite annual augmentation of this population and the development of improved monitoring techniques during the first 15 years of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP), little change has been observed in annual population estimates. Based on data collected in 2018–2019, the Lake Mohave repatriate population was estimated at 3,649 individuals. This estimate suggests that ongoing augmentation has been successful in conserving this population; however, poor post-stocking survival of repatriated fish has not led to an expanding population. The NFWG's original goal of establishing a population of 50,000 adult razorback suckers in Lake Mohave has yet to be realized, and 15 years of research and monitoring completed by the LCR MSCP suggests that it may not be realistic under current conditions.

The primary purpose of this conservation measure, protecting and conserving the genetic diversity of the existing population as a genetic refuge for the species, may however be met through ongoing activities. Wild-born razorback sucker larvae will continue to be collected from Lake Mohave each year. Collections will occur at all know spawning locations and will occur throughout the entire spawning season to provide the best opportunity for including the extant genetic diversity in each year's collections. Captured larvae will be reared in protective custody at program partner hatcheries until reaching an appropriate size for repatriation to the lake. Genetic analyses of larvae and repatriated adults collected during the first 15 years of program implementation have verified that this strategy has effectively conserved the historic genetic diversity that was present in the lake in the 1990s, and has provided evidence of increased gene diversity over the last 21 years (Dowling et al. 2017). Genetic monitoring of larvae and captured adults will continue for the life of the program, and the adaptive management process will use the best science available to address any issues and/or implement any changes in management (e.g., stocking fewer but larger repatriates to improve post-stocking survival) for the express purpose of conserving the genetic diversity of this population.

Literature Cited

Dowling, T. E., P. C. Marsh, and T. F. Turner. 2017. Razorback Sucker Genetic Diversity Assessment: 2017 Annual Report. Submitted to the Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada, by Wayne State University under agreement No. R14AC00004. 31 pp.

Marsh, P.C., C.A. Pacey, and B.R. Kesner. 2003. Decline of the Razorback Sucker in Lake Mohave, Colorado River, Arizona and Nevada. Transactions of the American Fisheries Society 132: 1251–1256.

Lower Colorado River Multi-Species Conservation Program. 2004. Lower Colorado River Multi-Species Conservation Program: Volume II. Habitat Conservation Plan. Final. December 2004.

USFWS. 1991. Endangered and threatened wildlife and plants; the razorback sucker (Xyrauchen texanus) determined to be an endangered species; final rule. Federal Register 56:54957–54967.